

## Title of the symposium:

Urban Sprawl: From Measurement to Management

## Detail of organizer(s):

### Responsible

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## Symposium abstract

Current trends in land uptake for built-up areas in many parts of the world clearly contradict the principles and the spirit of sustainability. Landscapes in many countries have been massively altered by increasing urban sprawl in the last 60 years, e.g., in Switzerland. Spatial planning has not been able to stop the increase in urban sprawl to this day. Urban sprawl is a major cause of loss of fertile farmland, soil sealing, and loss of ecological soil functions. Expanding built-up areas reduce the size of wildlife habitats and increase landscape fragmentation and the spread of invasive species. Urban sprawl results in higher car dependency, higher greenhouse gas emissions, higher infrastructure costs for transport, water and electrical power, the loss of open landscapes, and the degradation of various

ecosystem services. The awareness of the many negative impacts of urban sprawl on the landscape and on different areas of life has grown considerably in recent years. In order to discuss the problem on a quantitative basis, however, methods and data have only recently become available, which allow for a comparison of urban sprawl between different regions and between different time periods. To address the increasing problem of urban sprawl, there is an urgent need for improved landscape management frameworks and tools that consider the knowledge from landscape ecology. For example, settlement boundary lines, preventing a dispersed expansion of built-up areas, densification of existing built-up areas and minimum densities for new built-up areas, and the comparison of planning scenarios have been proposed. Quantitative measurements of urban sprawl would allow for establishing environmental standards, such as targets and limits to urban sprawl, similar to limits and standards in other environmental sectors such as noise limits and limits to water pollution. Based on such standards, legal requirements could be developed that would act as a reliable framework for all spatial planning actors. However, little is known about the effectiveness of these measures and their long-term effects on the landscape. Without rigorous measures, sprawl is likely to increase strongly in the future, but a few examples demonstrate that sprawl can be reduced. Banks can help avoid urban sprawl by divesting from sprawl, such as the Alternative Bank of Switzerland (ABS) does by not giving mortgages to construction projects that would strongly contribute to urban sprawl. This symposium will bring together researchers and planners to bridge the gap between the measurement and management of urban sprawl.

### **How your symposia will improve landscape ecology science?**

The effects of urban sprawl on landscapes are diverse and many are irreversible. Changes in landscape structure have been measured for more than three decades in landscape ecology. Measures of urban sprawl are important for monitoring landscape change and for modelling potential future scenarios. Landscape and urban planning can apply lessons and principles from landscape ecology and can stimulate new research questions in landscape ecology. The symposium will contribute to advances in landscape ecology science by addressing the following questions: What is the state of the art in applying measures of urban sprawl in landscape and urban planning? How can landscape ecology support planners in their efforts to control urban sprawl? What urban sprawl management strategies can be proposed from a landscape ecology perspective? What management strategies are preferable over other from a landscape ecology perspective? Can landscape ecology provide a knowledge base for the establishment of targets and limits through the identification of thresholds?

## **Broad thematic areas**

Broad thematic areas 1st choice: Urban regions (urban landscapes, urbanization processes, urban metabolism, rural urban systems)

Broad thematic areas 2st choice: Geography and landscape ecology

## **Free Keywords**

Urban sprawl, landscape metrics, landscape management, landscape monitoring, urban planning